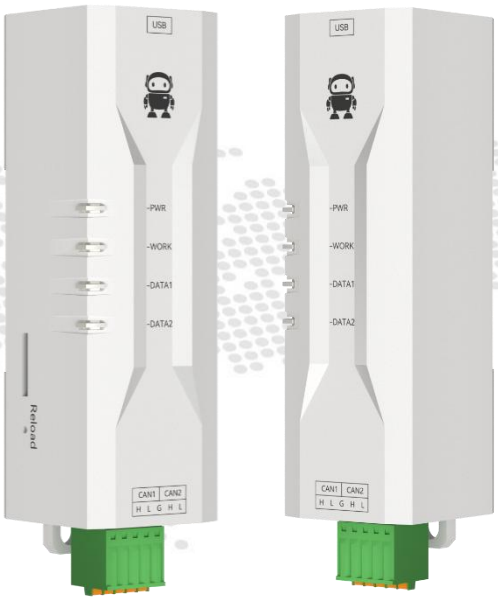
Chengdu Ebyte Electronic Technology Co.,Ltd

Wireless Modem

User Manual

ECAN-U01M/ECAN-U01MS



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Contents

1. Product Introduction 3
1.1. Product Introduction 3
1.2. Features: 3
2. Get started quickly 4
3. Installation dimensions 8
4. Interface Definition > LED 9
5. Technical Indicators 10
6. Equipment use 11
6.1. Connect with a PC 11
6.2. Connect with CAN-bus 11
6.3. CAN Bus Termination Resistor 11
7. Detailed explanation of the function 12
7.1. Save data function and real-time save function 12
7.2. Pause the display function 13
7.3. Display mode 13
7.4. Clear function 13
7.5. Filter settings 14
7.6. Bus diagnostics function 15
8. Data sending mode 15
8.1. Normal sending mode 15
8.2. Send Error Frame Count feature 16
9. Important Notice: 16
10. Revision History 17
11. About us 17

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1. Product Introduction

1.1. Product Introduction



The ECAN-U01M/ECAN-U01MS is a high-performance CAN-bus communication analyzer with 2 CAN interfaces. The ECAN-U01M is an isolated version and the ECAN-U01MS is a non-isolated version. The analyzer is compatible with USB2.0 bus full-speed specification, and the PC can be quickly connected to the CAN-bus network through the USB interface, forming a CAN-bus network control node for data processing and data acquisition in the field of CAN-bus network such as fieldbus laboratory, industrial control, intelligent community, and automotive electronic network.

The ECAN-U01M is a powerful tool for CAN-bus product development and CAN-bus data analysis, and is also the best choice for portable system users due to its compact size and plug-and-play. The ECAN-U01M integrates a galvanic isolation protection module with a CAN interface, which prevents damage to the equipment due to instantaneous overcurrent/overvoltage, and enhances the reliability of the system in harsh environments.

The ECAN-U01M can be used with our own universal test software, which can perform functions such as sending and receiving CAN-bus messages and monitoring them.

1.2. Features:

- Integrated 2-way CAN-bus interface with plug-in terminal connection;
- Support CAN2.0A and CAN2.0B frame formats, compliant with ISO/DIS 11898 specification;
- CAN-bus communication baud rate is programmable between 5Kbps~1Mbps;
- Powered by USB power supply;
- Complete signal and power isolation, up to 2.5kV RMS isolation; (ECAN-U01M only)
- Maximum received data traffic: 17000fps;
- The time stamp accuracy of the CAN-side received message can reach 1us;
- Support remote upgrade;
- Support for testing software;
- Operating temperature range: -40°C~+85°C.

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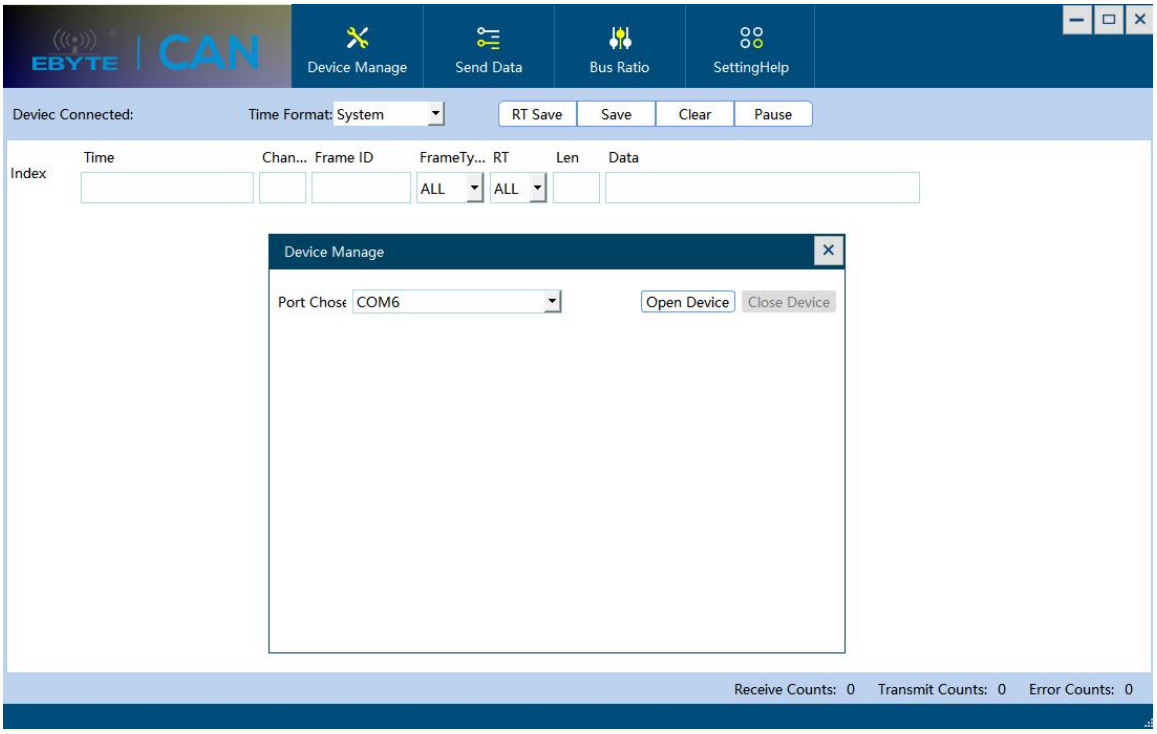
2. Get started quickly

1. You need to prepare ECAN-U01M/ECAN-U01MS analyzer and type-c data cable (supporting data transmission)

First of all, the analyzer is powered by a Type-C data cable (the Type-C data cable needs to support data transmission).

2. Connect the computer to the device via a Type-C cable;

Open the debugging software, configure the CAN baud rate and other parameters of the device in the configuration interface, and enter the communication interface;

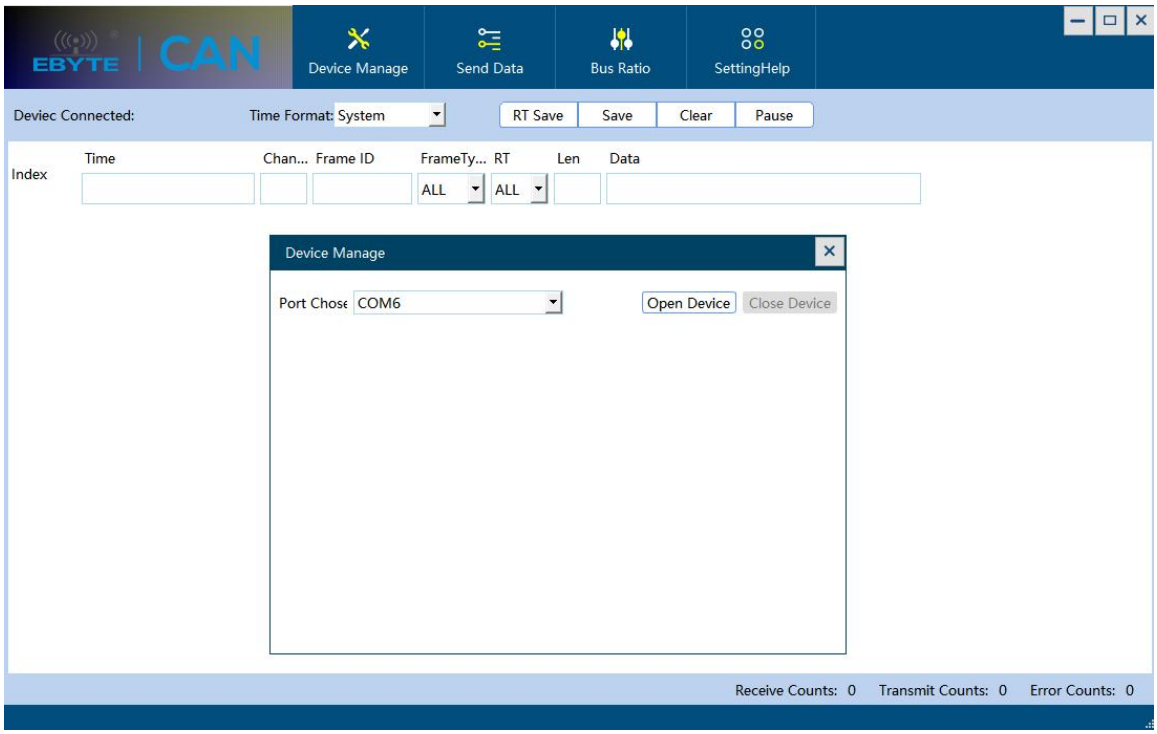


Connecting an external CAN device to the analyzer When connecting ECAN-U01M/ECAN-U01MS to the CAN bus, just connect CAN_H to CAN_H and CAN_L to CAN_L to establish communication.

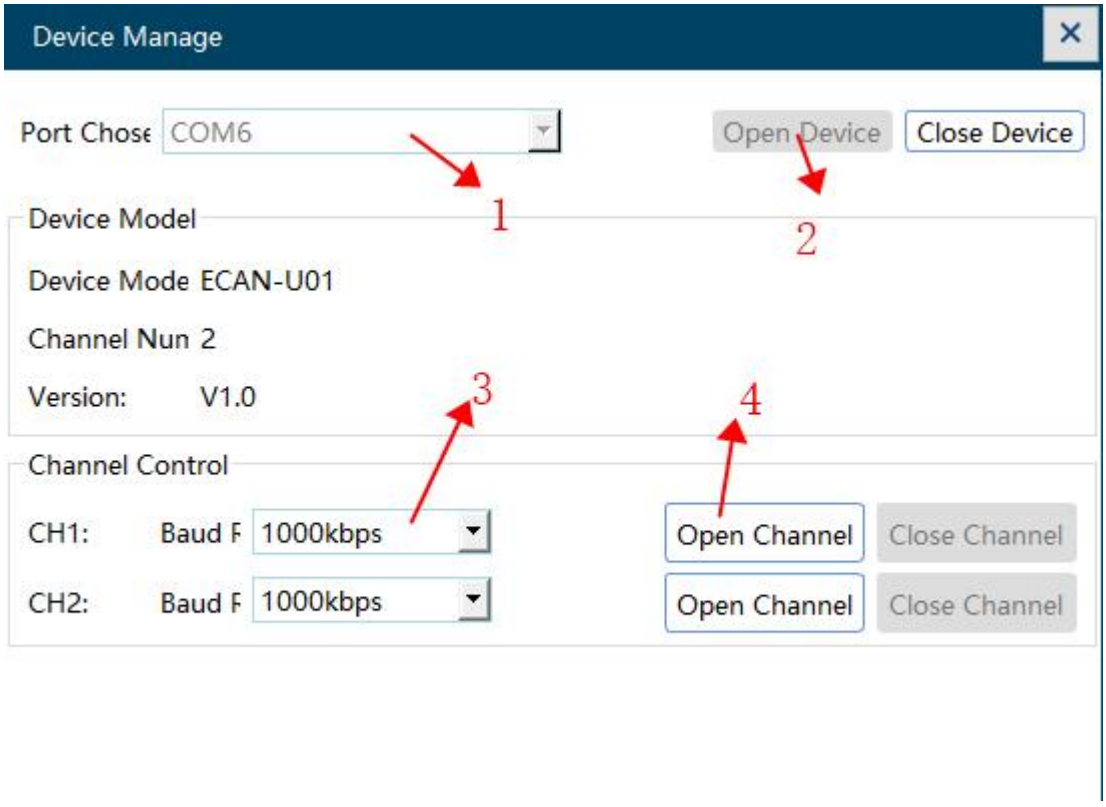
Demo: Connect the CAN analyzer hardware, open the software and there will be a setup interface as shown in the figure below.

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Select Device Management to enter the configuration page, as follows:



① Select Port Number: Select the serial port number of the device.

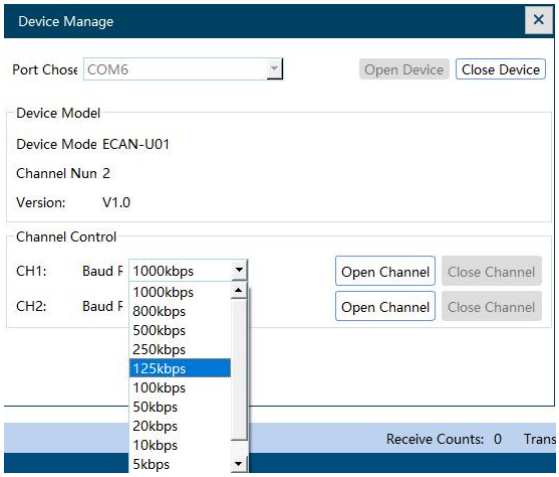
② "Turn on the device" button: Click this button to access the USBCAN device. If the message "USB device turned on error!" is displayed. "Please check that the device selected in (1) is correct and that the driver in Device Manager is installed correctly.

③ Select Channel Baud Rate: This drop-down box allows you to select the device CAN baud rate, which is essential for CAN bus communication, and you need to determine the baud rate of the target device or target bus before communication. Support 5k-1000k,

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support custom baud rate.



If you are using a special baud rate, please click the Customize button, you will need to enter a decimal baud rate, the following table lists some of the values of the special baud rate, and select a suitable configuration.



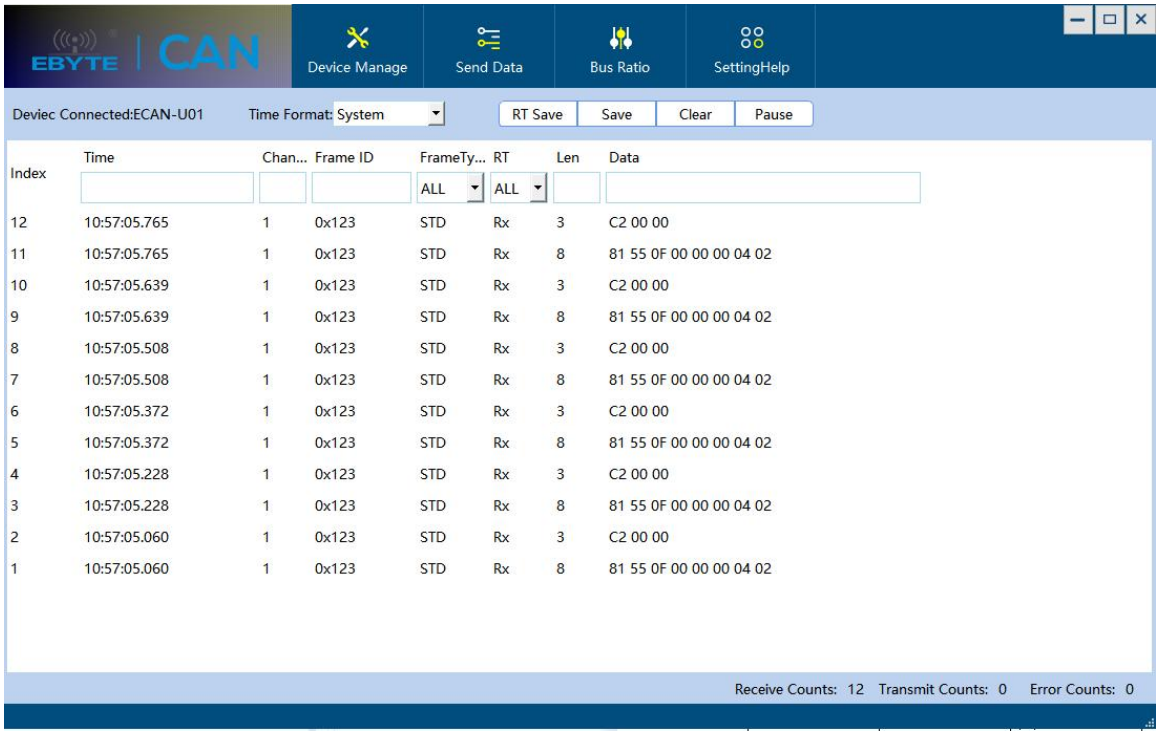
Please note that setting the baud rate is particularly important, many customers report that there is no data after the device is connected, or the bus is wrong, in fact, the baud rate is not set, and directly click OK to turn on the device. Here's a reminder that no matter whether you use our device as a master or slave device, as long as you connect the device to the CAN bus, you must set the baud rate of the device to be consistent with the baud rate of the target device in order for it to work properly.

④ Open Channel Button: This is where the CAN channel can be opened.

After the device parameters are set, the software will enter the working state, and if there is data on the bus, then the data will be displayed in the receiving data window. The receive window is shown in the following figure:

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3. Installation dimensions

Equipment dimensions: (length, including terminals) mm * (width) mm * (height) mm, the schematic diagram of which is shown in Figure 2.1.

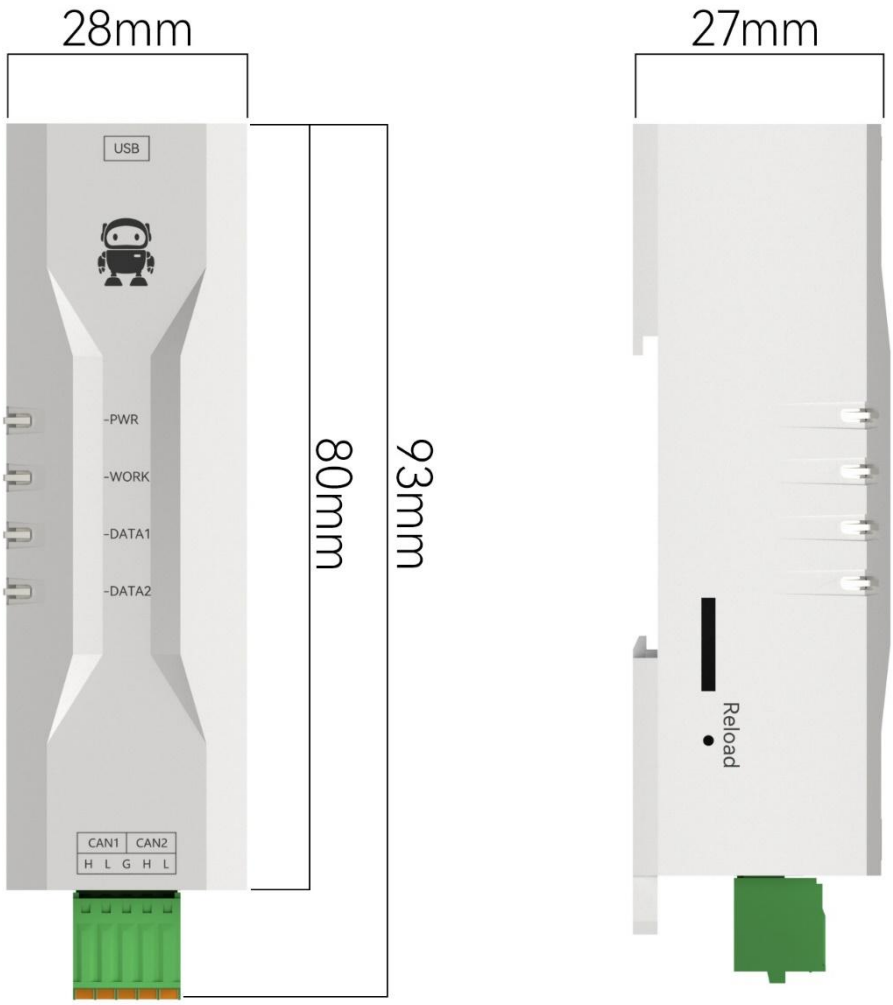


图 2.1 ECAN-U01M/ECAN-U01MS 外形尺寸

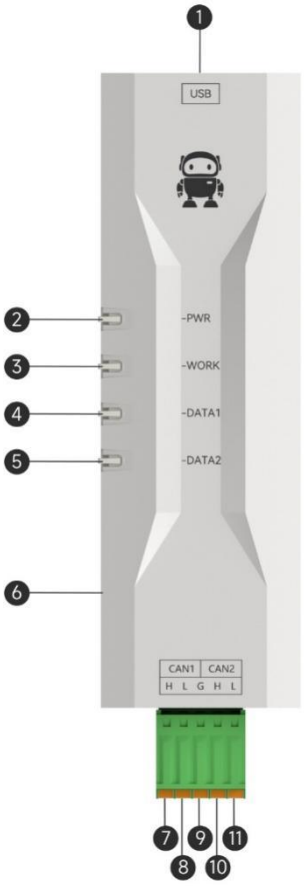
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4. Interface Definition > LED

The ECAN-U01M/ECAN-U01MS integrates 1 type-c interface, a factory reset button, and 2 standard CAN-bus interfaces. The CAN-bus interface is led by a 5-pin plug-in terminal block and can be used to connect two CAN-bus networks or devices with a CAN-bus interface.

The positions and definitions of the interfaces of ECAN-U01M/ECAN-U01MS are shown in the figure.



pins	name	function
1	TYPC-C interface	Typc-c power supply, connected to a computer
2	PWR	Device indicator, see below for details
3	WORK	Device indicator, see below for details
4	DATA1	Device indicator, see below for details
5	DATA2	Device indicator, see below for details
6	Reload	Factory reset button
7	CAN1_H	CAN1_H Signal Lines (CAN High)
8	CAN1_L	CAN1_L Signal Line (CAN Low)

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9	CAN_G	2-way CAN-GND grounding
10	CAN2_H	CAN2_H Signal Lines (CAN High)
11	CAN2_L	CAN2_L Signal Lines (CAN Low)

The ECAN-U01 has 1 PWR indicator, 1 Work indicator, 1 DATA1 indicator, and 1 DATA2 indicator to indicate the operating status of the device. The specific indication functions of these 4 indicators and the status of the CAN bus when these 4 indicators are in various states are shown in the following table.

Light	color	state	Indicates the status
PWR	blue	bright	The power supply is normal
		Not lit	The power supply is faulty
WORK	yellow	Solid on	The device is initialized and is in standby state
		Not lit	Device initialization failed
		flashing	There is a software calling device on the PC side
DATA1、DATA2	green	Not lit	There is no data transmission on the CAN channel
		Flashing green	There is data transmission in the corresponding CAN channel
		Solid green	An error is reported on the corresponding CAN channel bus

After the ECAN-U01M/ECAN-U01MS is powered on, the four indicators are lit at the same time, and then the PWR and WORK are always on, but the DATA1 and DATA2 lights are not on, indicating that the device has been powered and the system has completed initialization. Otherwise, there is a system power failure or other fault.

After the USB interface is connected normally, when the host computer software on the PC side calls the USBCAN device, the USB signal indicator WOEK will flash. At this time, when CAN1 or CAN2 sends and receives data, the corresponding DATA1 and DATA2 indicators will flash. If the WORK flashes but the DATA1 or DATA2 indicator does not light up, there is no data on the CAN channel.

5. Technical Indicators

General specifications

serial number	project	specification	illustrate
1	Product dimensions	94*28*27mm	See installation dimensions for details
2	Product weight	33g	Weight tolerance 5g

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3	Operating temperature	-40℃～85℃	Meet the needs of industrial-grade use
5	Voltage range	TYPC-c power supply	——
6	Communication interface	USB	TYPC-C interface
7	CAN baud rate	Factory default 100K	——

6. Equipment use

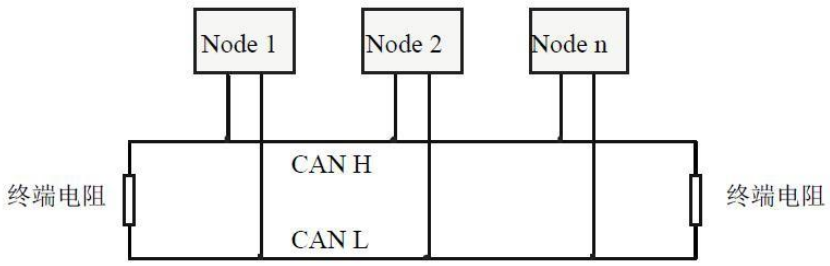
6.1. Connect with a PC

The USB interface of ECAN-U01M/ECAN-U01MS can communicate with PC.

6.2. Connect with CAN-bus

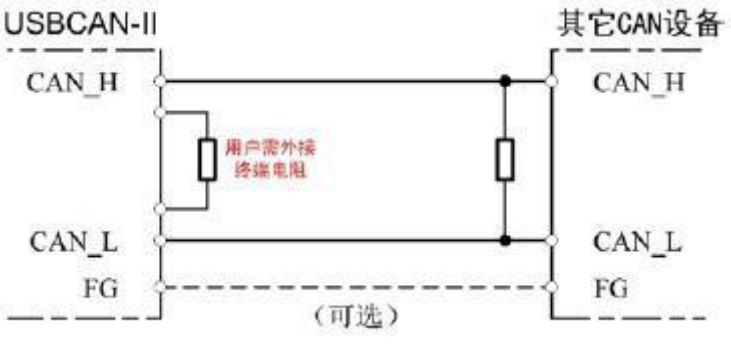
When ECAN-U01M/ECAN-U01MS is connected to the CAN bus, just connect CAN_H to CAN_H and CAN_L to CAN_L to establish communication.

The CAN-bus network adopts a linear topology, and the two terminals farthest from the bus need to be installed with 120Ω termination resistors. If the number of nodes is greater than 2, the intermediate node does not need to install a 120Ω termination resistor. For branch connections, their length should not exceed 3 meters. The connection of the CAN-bus bus is shown in the figure.



6.3. CAN Bus Termination Resistor

In order to enhance the reliability of CAN communication and eliminate the signal reflection interference of CAN bus terminals, the two farthest endpoints of the CAN bus network usually add terminal matching resistors, and the value of terminal matching resistors is determined by the characteristic impedance of the transmission cable. For example, if the characteristic impedance of a twisted pair is 120Ω, then the two endpoints on the bus should also integrate a 120Ω termination resistor.



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Note: The ECAN-U01M/ECAN-U01MS does not have a 120Ω termination resistor, if you need to use a 120Ω matching resistor, please add it yourself. (4 x 120Ω color ring resistors are included with the factory)

7. Detailed explanation of the function

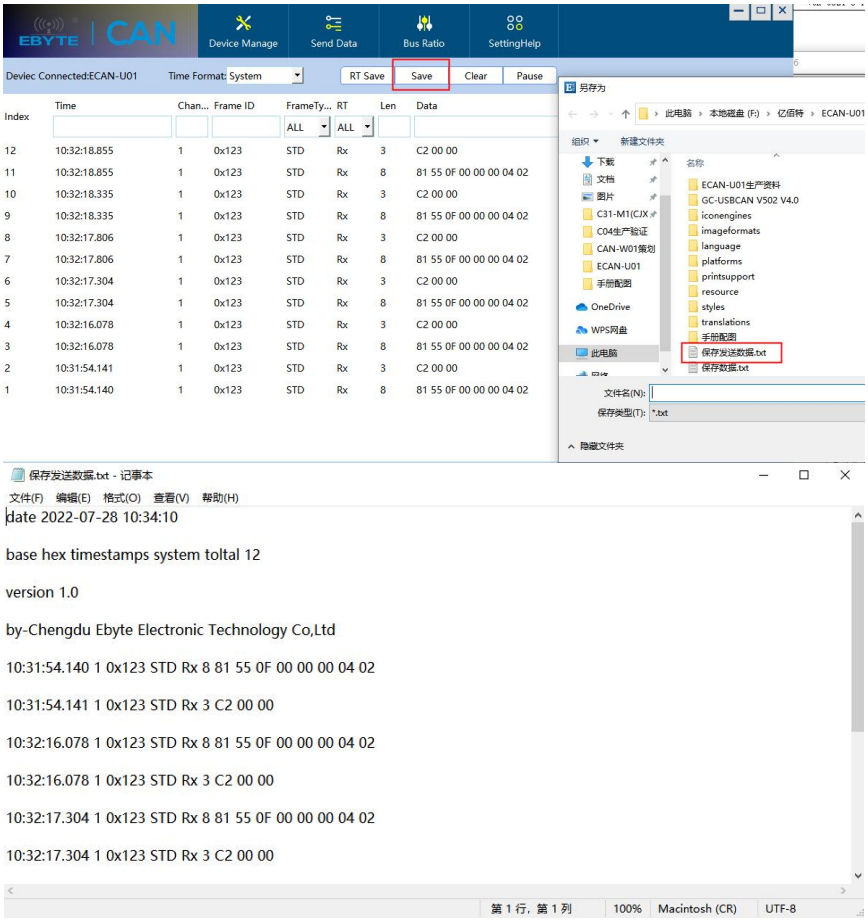
7.1. Save data function and real-time save function

Users can save all the data in the current send/receive list to the local computer, and the saving format is detailed in the following table:

file type	file format	editor
text file	.txt	notepad

The text file is easy to save the data, and can be formatted and imported into Excel for post-analysis.

Click "Real-time Save" on the toolbar, set the text type and file name of real-time saving, you can start the real-time data saving function (i.e., set the save node A), click again (i.e., set the save node B), the system will stop saving, and write all the data from the start (A) to the end (B) to the save file.

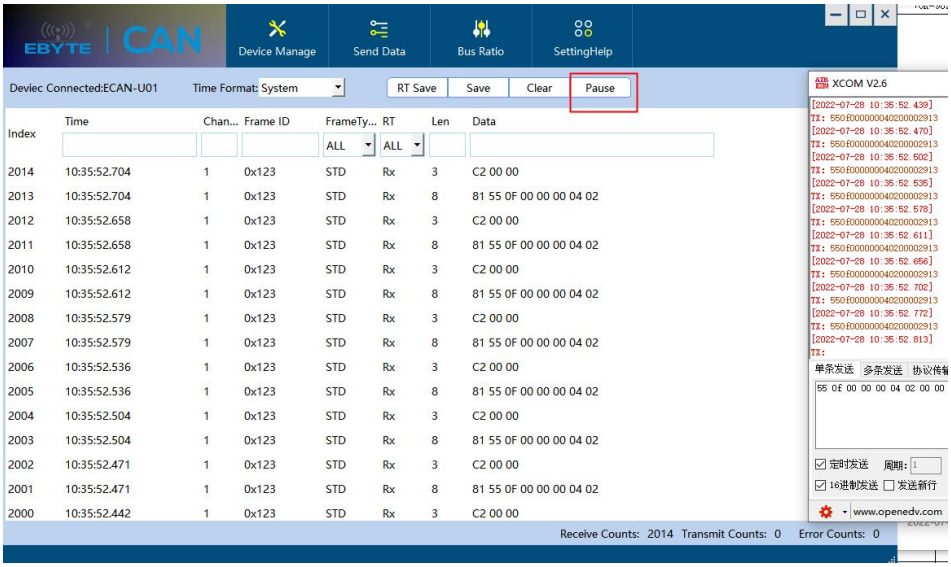


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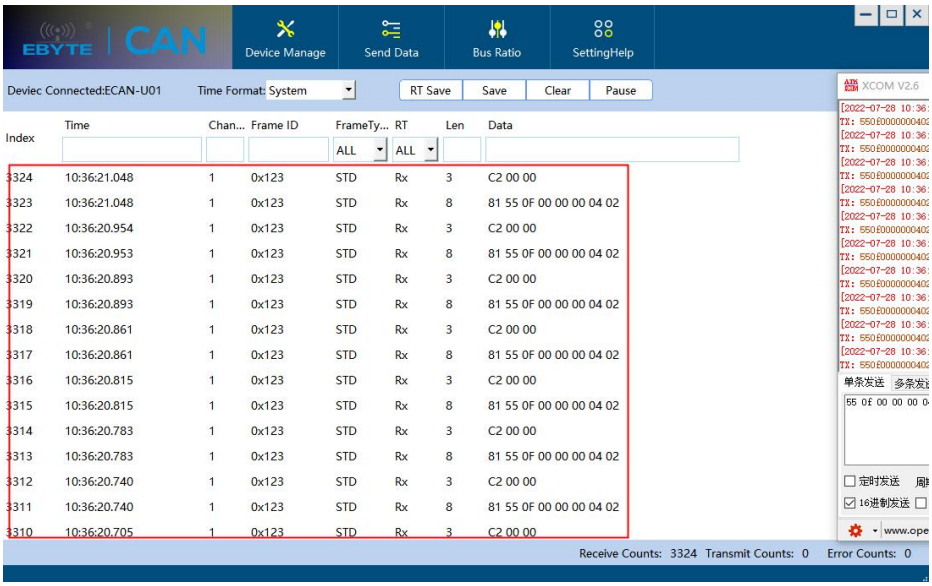
7.2. Pause the display function

Click Pause to pause the data window that is currently scrolling, and the device and software can still receive data normally when paused, but the data window will not be refreshed, click Continue to display to resume scrolling.



7.3. Display mode

The display mode supports the scrolling mode to display the received or sent data, the scrolling display is that the received data keeps scrolling down in the received list, and the current window sees the latest data;

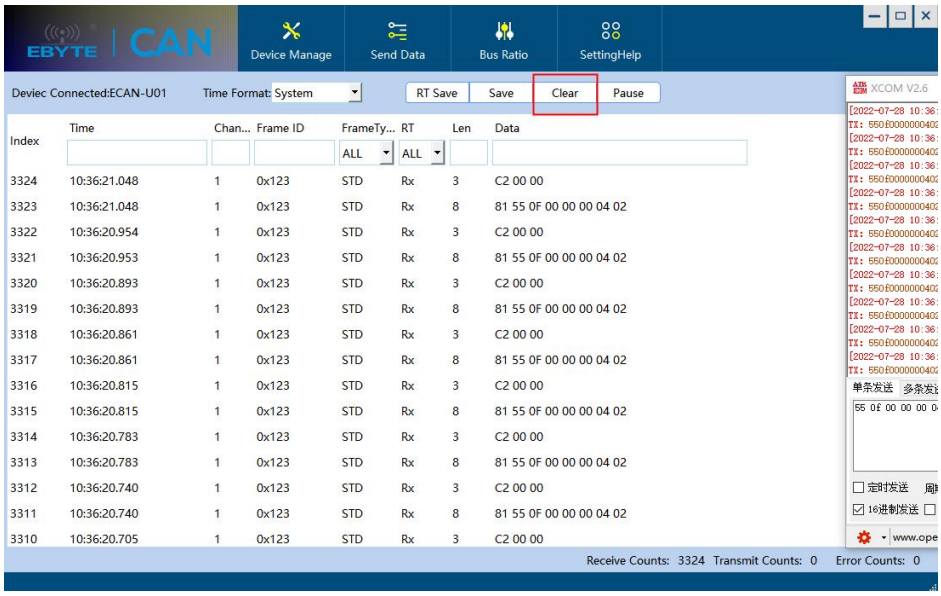


7.4. Clear function

You can empty the data in the receive/send window, as well as the data in the buffer.

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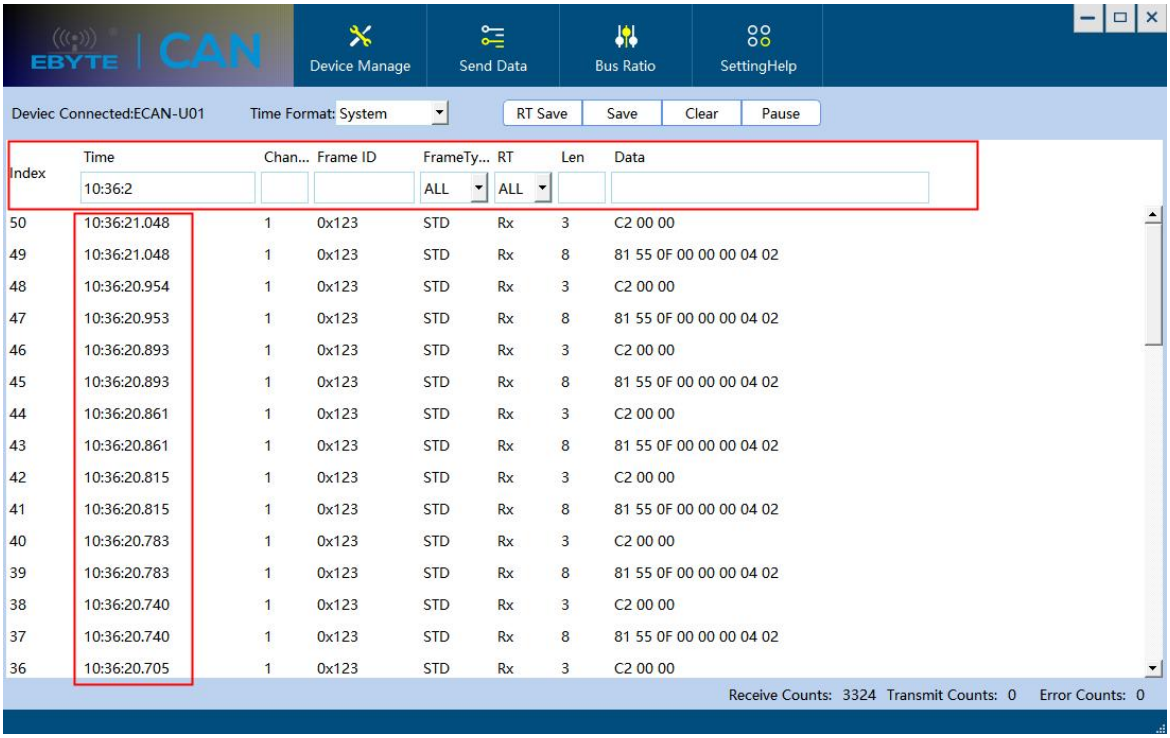
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7.5. Filter settings

If you set the filter, the software will only display the filter conditions that are set, and the frames that are not within the filter range will be filtered.

Here's how it works:

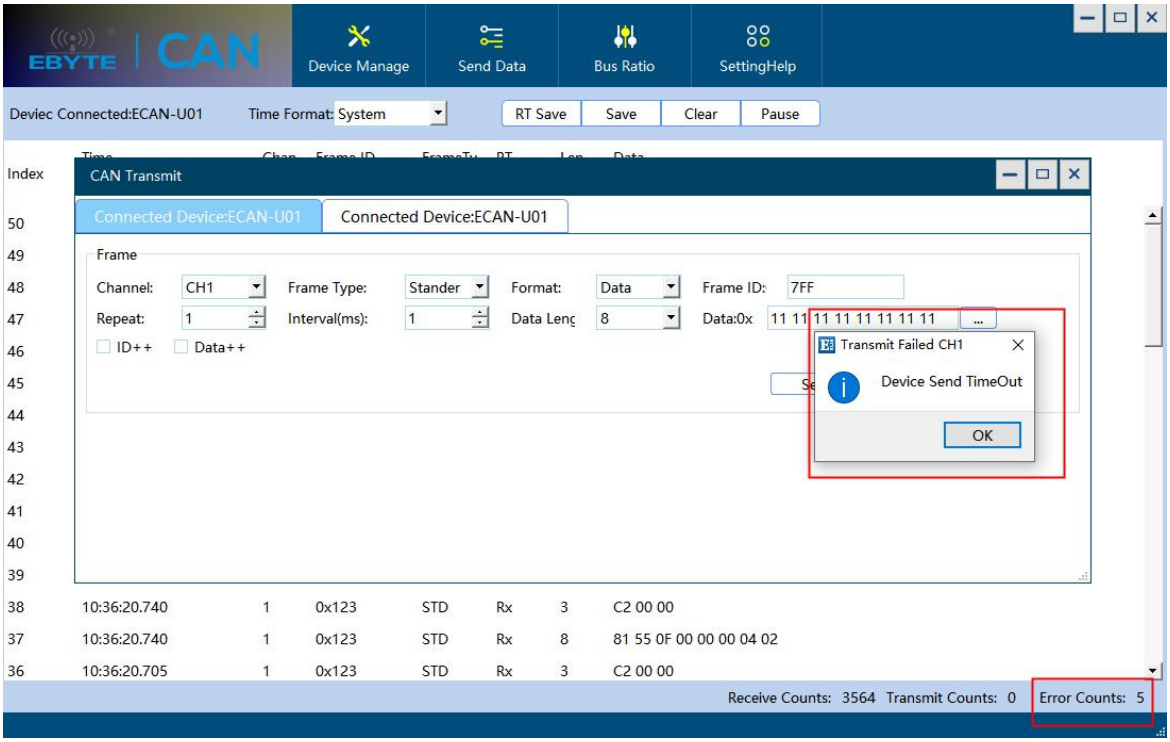


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7.6. Bus diagnostics function

When a bus error occurs during the use of the device, the DATA1/DATA2 data light of the device will display solid red until the bus returns to normal, and the red alarm will disappear. And the host computer will display the number of error frames, as shown in the figure:



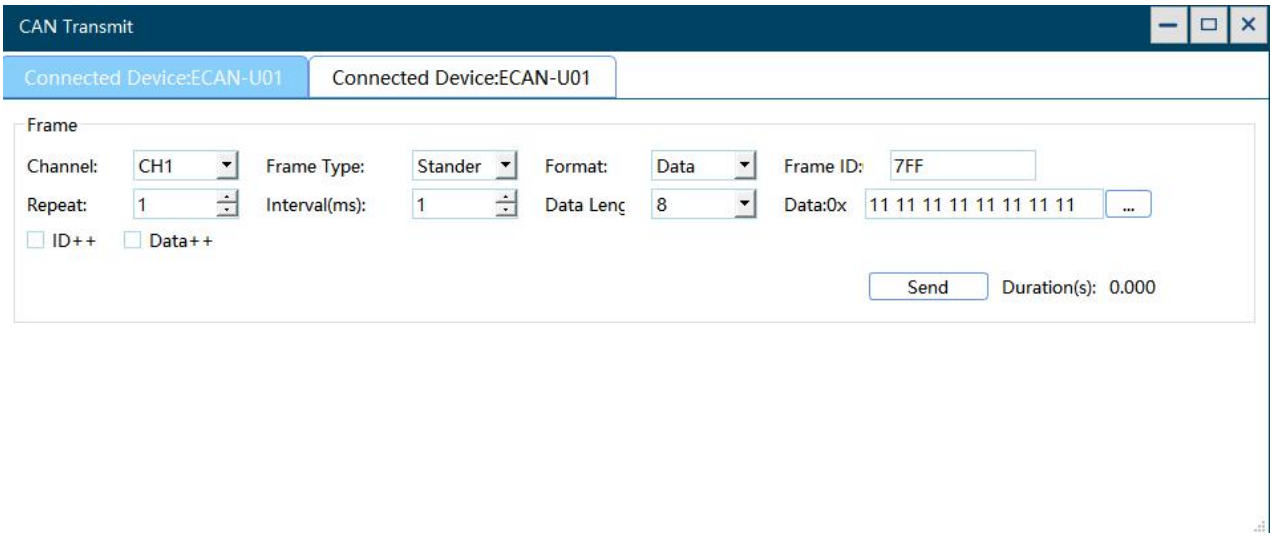
8. Data sending mode

8.1. Normal sending mode

Normal mode can be very intuitive to edit the frame data to be sent, and special functions such as loop sending can be set. Editing frame information is very intuitive, please note that you need to enter a space between each byte when entering data, here the host computer automatically enters a space.

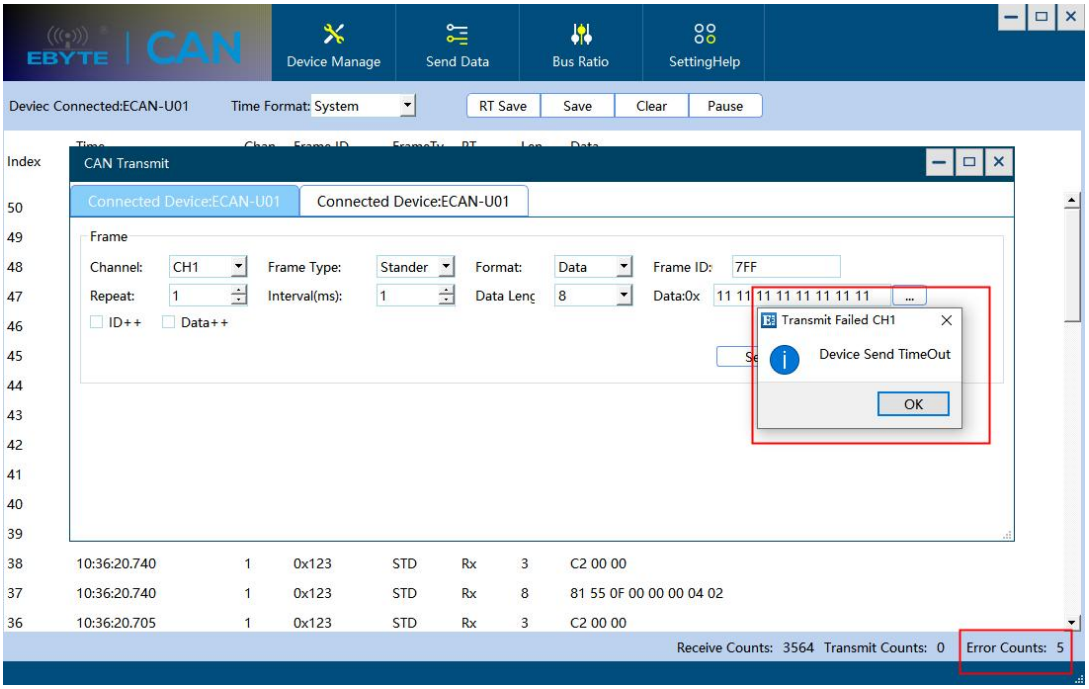
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8.2. Send Error Frame Count feature

The software can capture sending errors on the device, and when the sending data fails, a count of error frames will be displayed at the bottom right of the software. As shown in Fig



9. Important Notice:

EBIT reserves the right of final interpretation and modification of all contents in this manual.

Due to the continuous improvement of the hardware and software of the product, this manual may be changed without prior notice, and the latest version of the manual shall prevail.

Protecting the environment, everyone is responsible: in order to reduce the use of paper, this manual only prints the Chinese part, and

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the English manual only provides electronic documents, if necessary, please download it from our official website; In addition, if it is not specifically requested by the user, when the user orders in bulk, we will only provide the product manual according to a certain percentage of the order quantity, and not every data radio station will be matched one by one, please understand.

10. Revision History

version	Date of revision	Revision Notes	Maintainers
1.0	2024.11.29	Initial release	ZYD

11. About us

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